# ARCADIS Avantic

**High-end mobile imaging with a larger field of view**

**Technical Data**

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# ARCADIS Avantic

## High-end mobile imaging with a larger field of view

**ARCADIS Avantic – clear advantages in high-end mobile imaging**

Siemens starts a new era in the OR with the *syngo*-based ARCADIS Avantic.

*syngo* provides you with clinical patient information online, so you can optimize efficiency in your OR, allowing entirely new possibilities.

ARCADIS Avantic expands the boundaries of your OR by integrating modalities such as CT and MR, as well as the entire clinical network into your OR work process.

**ARCADIS Avantic – distinctive advantages for clinical efficiency in the OR**

*syngo*

- Uniform, intuitive user interface for system operation, image postprocessing and networking
- Workflow-oriented task card structure
- Comprehensive connectivity with other modalities and clinical networks

**Optimized clinical workflow**

- Maximum flexibility in patient registration
- Easy, intuitive selection of application-specific user programs with VPA (Virtual Patient Anatomy)
- Real multimodality viewing before, during, and after the procedure
- Virtually unlimited possibilities for documentation and archiving
- Fluoro loop* / LSH* (Last Scene Hold)

**Brilliant 1K² image quality**

- Optimally matched, continuous 1K² imaging chain, from image acquisition to viewing and archiving
- High-luminance TFT displays

**Powerful performance**

- Large power reserves of up to 25 kW
- High tube currents of up to 250 mA
- Dual-focus rotating-anode tube

**Large field of view**

- Mobile C-arm with 33 cm (13") image intensifier
- High penetration with Digital Cine Mode* (DCM) with up to 30 f/s image acquisition
- Image storage rate of up to 15 f/s in continuous fluoroscopy, pulsed fluoroscopy and subtraction, wide range of movie functionalities
- Best suited for applications in vascular and cardiac surgery, electrophysiology, gastroenterology, orthopedics, trauma and spine surgery as well as pain management, general surgery and urology

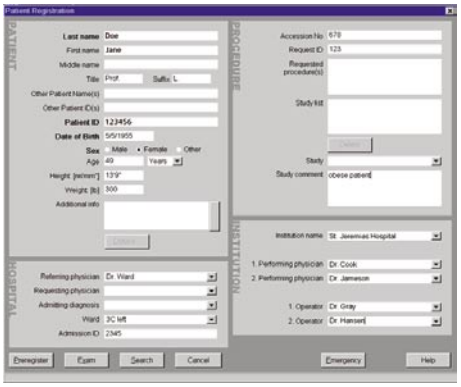
**Comprehensive connectivity and specialized interfaces**

- Supports virtually all DICOM 3 functions
- *syngo* fastView for convenient selection and viewing of clinical images on the PC

**User-friendly operation**

- Adjustable control panel for all-in-one operation
- Fast and precise positioning through electromagnetic brakes with intelligent color coding
- Excellent maneuverability due to compact, lightweight design

* Option



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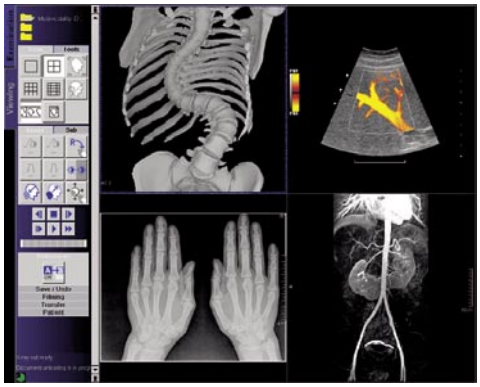
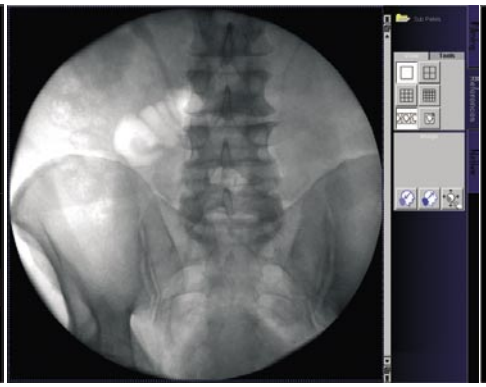




| C-arm | |
|---|---|
| Orbital movement | 132° (- 42° to + 90°) |
| Angulation | ± 190° |
| Horizontal movement | 20 cm (7.9”) |
| Immersion depth | 73 cm (28.7”) |
| Swivel range | ± 10° |
| Vertical travel | 38 cm (15”), motorized |
| Source-I.I. distance | 100 cm (39.4”) |
| Free space | 78 cm (30.7”) |

| X-ray generator/tube unit | |
|---|---|
| **POWERPHOS high-frequency generator** | |
| Power output | 15 kW |
| Max. pulsed output | 25 kW |
| Inverter control frequency | 15 kHz to 35 kHz |
| kV range | 40 kV to 125 kV |
| Digital Radiography | up to 250 mA |
| Fluoroscopy | 0.2 mA to 15.2 mA (max. 1000 watts) |
| Power Mode | enables temporary max. output in continuous fluoroscopy |
| Pulsed Fluoroscopy | up to 67 mA |
| Pulse rate | up to 8 p/s, up to 15 p/s* |
| DCM* (Digital Cine Mode) | up to 250 mA |
| Minimum pulse width | 7 ms |
| Pulse rate | up to 30 p/s |
| Heat storage capacity of POWERPHOS housing | 1,900,000 J, 2,565,000 HU |

| **Single tank with dual-focus rotating-anode tube** | |
|---|---|
| Focal spot nominal value | 0.3 / 0.5 |
| Nominal voltage | 125 kV |
| Heat storage capacity of anode | 200,000 J, 270,000 HU |
| Optical anode angle | 10° |
| Inherent filtration | 2.5 mm Al; 0.1 mm Cu |
| Anode drive | up to 10,800 RPM |

| Collimator system | |
|---|---|
| Iris diaphragm | for concentric, radiation-free collimation |
| Semi-transparent slot diaphragm | for symmetric, radiation-free collimation, with unlimited rotation |



* Option

## X-ray TV system

High-resolution X-ray TV system in maintenance-free CCD technology with 1024 x 1024 ($1K^2$) full-size CCD sensor

Constant image brightness due to automatic gain control

High contrast and high spatial resolution

| | |
|---|---|
| TV matrix | $1K^2$ |
| Digital image rotation | ± 360° |

## X-ray image intensifier

Metal-enamel technology with Mu-metal shielding

Precision electron optics with minimal image distortion and consistent high resolution across the entire image field

Cesium-iodide input screen for minimum quantum noise and excellent resolution

Anti-glare output screen with scattered light trap for high contrast dynamics and prevention of scattered light effects

High-transparency input window

| **SIRECON 33-3 HDR-4** | | | |
|---|---|---|---|
| Nominal diameter | 33 cm (13“) | | |
| Zoom formats | 21 cm (8“) | 16 cm (6“) | 12 cm (5“) |
| Grid | PB 17/70, $f_0$ 100 | | |

## Displays

| **18“ TFT monochrome display** | |
|---|---|
| High-contrast display with high luminance | |
| Screen size | 18“ (46 cm) |
| Image matrix | 1280 x 1024 |
| Maximum brightness, typical | 600 cd/m² |
| Horizontal / vertical viewing angle | 170° / 170° |

| **19“ TFT color display** | |
|---|---|
| Screen size | 19" (48 cm) |
| Image matrix | 1280 x 1024 |
| Maximum brightness, typical | 280 cd/m² |
| Horizontal / vertical viewing angle | 170° / 170° |

## *syngo*

Fully digital, *syngo*-based online imaging system with continuous 1K² imaging chain (image acquisition, image processing, storage, archiving and documentation). Integrated, uninterruptible power supply (UPS) ensures that image and patient data are secure in the event of a power outage

| | |
|---|---|
| *syngo*-based applications | Intuitive menu guidance with function-oriented task cards |
| | Dedicated, application-related user programs with VPA (Virtual Patient Anatomy) with anatomic assignment and selection |
| | Direct dose level selection for individual adaptation of the radiation dose to the patient's anatomy (ensures lowest possible dose at high image quality) |
| | Dynamic and static reference image display |
| | Simultaneous display of subtracted and native images (with Subtraction option) |

## Patient data administration

| | |
|---|---|
| Patient data administration | Emergency registration |
| | Pre-registration |
| | Manual patient registration |
| | Registration via database query (Patient Browser) |
| | Registration via DICOM Worklist* |

## Image acquisition

**Operating modes**

Selection of 8 application-specific fluoroscopy and radiography curves for the individual operating modes

| | |
|---|---|
| Digital Fluoroscopy (FL) | Continuous fluoroscopy with 30 f/s (1K²/12-bit matrix)<br>Image acquisition / storage of up to 8 f/s (up to 15 f/s*) |
| | Digital filtration |
| | Sliding weighted averaging for low-noise image display with minimum dose |
| Digital Radiography (DR) | Digital filtration (1K²/12-bit matrix) |
| | Sliding weighted averaging for low-noise image display with minimum dose |
| Digital Pulsed Fluoroscopy (PFC) | Image acquisition / storage 0.5 to 8 f/s, (0.5 to 15 f/s*) |
| Digital Cine Mode* (DCM) | Image acquisition / image storage 0.5 to 30 f/s |
| | Acquisition of moving objects with optimum image quality due to high temporal resolution |
| Digital Subtraction Angiography* / Roadmap* | Image acquisition with 30 f/s, storage of up to 8 f/s (up to 15 f/s*) |
| | Simultaneous dual-channel output for image acquisition and postprocessing, simultaneous storage of fill image |



* Option

Image display/processing

Data transfer and documentation

Options

## Image acquisition

| | |
|---|---|
| Dose optimization | Integrated dose measuring chamber* with automatic entry of the accumulated dose in a radiation report |
| | Dose level selection |
| | System-integrated laser aimer on image intensifier side* |
| | System-integrated laser targeting device on tube side* |
| | Detachable grid on the image intensifier for pediatric applications |
| Footswitch | Standard footswitch* for radiation release |
| | Multifunctional footswitch* with advanced functionality |
| Remote control unit | Remote control unit* for controlling the C-arm functions from the sterile area |

## Image display/processing

| | |
|---|---|
| Image display | Split screen (1, 4, 9, 16 on 1) |
| | Digital zoom, fixed zoom, roaming |
| | Image intensifier zoom (optical zoom) |
| | Digital image rotation |
| | Movie function for playback of scenes |
| | Digital shutters |
| | Left/right and top/bottom image reversal |
| | Positive/negative image inversion |
| | Fluoro loop* / LSH* |
| Image processing | Application-specific lookup tables (LUTs) for optimum contrast and brightness |
| | Spatial frequency filtration for edge-enhanced image display |
| | Pixelshift, Remask, Landmark (with Subtraction option) |
| | Edge enhancement |
| | Noise reduction |
| | Motion detection with active noise reduction |
| Text / graphic functions | Marking, image annotation and comment |
| | Measuring* of angles and distances |

## Data transfer and documentation

| | |
|---|---|
| DICOM Basic* | DICOM Storage Send/Receive<br>DICOM interface for image data communication in a clinical network (PACS) based on the DICOM 3 standard<br>Sending, receiving and storing of images<br>DICOM Storage Commitment<br>Archiving confirmation from the image archive<br>DICOM Print<br>For printing within the network, on a DICOM-compatible camera or DICOM-compatible printer<br>*syngo* Filming task card<br>Enables dedicated image selection prior to printing; preview and grouping of images on the virtual film sheet |
| DICOM Advanced* | DICOM Advanced contains all the functions of DICOM Basic, plus:<br>DICOM Query/Retrieve<br>Retrieval of studies from a digital archive, a workstation, or other imaging systems; e.g., MR, CT<br>Multimodality viewing<br>DICOM Worklist Management<br>For importing patient/examination data from an independent HIS/RIS system, including HIS/RIS queries via special search criteria<br>MPPS (Modality Performed Procedure Step)<br>For importing / exporting examination data from / to an independent HIS/RIS system<br>All DICOM Advanced functions are also available as individual items in combination with DICOM Basic |

* Option

| Data transfer and documentation | |
|---|---|
| Image storage | 40,000 images on hard disk in $1K^2$ matrix |
| DICOM Offline Media (CD r/w) | For documenting images on CD in DICOM and BMP format<br>DICOM Viewer for viewing patient images on the PC (single images only)<br>The DICOM viewer can be written to CD |
| External monitor connections* | Monitor Out Live (L):<br>For connecting up to 2 external live monitors<br>Monitor Out Live and Reference (L + R):<br>For connecting up to 2 external live and reference monitors each<br>SXGA (1280 x 1024); 75 Hz; 5x BNC (galvanic separation) |
| Video splitter* | Live monitor (L):<br>Video splitter output for connecting an external live monitor<br>Reference monitor (R):<br>Video splitter output for connecting an external reference monitor<br>VGA interface (splitter), 1 x 15 pin VGA (no galvanic separation) |
| Printer* | Digital printer for printing on paper<br>Digital high-end printer for printing on film or paper |
| HIPAA* | Security and Privacy (Health Insurance Portability and Accountability Act) |

| Options | |
|---|---|
| Image acquisition | Pulsed fluoroscopy (pulse rate up to 15 f/s)<br>Digital Cine Mode (DCM) (pulse rate up to 8 p/s; 15 p/s; 30 p/s)<br>Digital Subtraction Angiography / Roadmap<br>System-integrated laser aimer on image intensifier side<br>System-integrated laser targeting device on tube side<br>Integrated dose measuring chamber<br>Standard footswitch<br>Multifunctional footswitch<br>Remote control unit |
| Image display/processing | Fluoro loop / LSH<br>Measuring of angles and distances |
| Data transfer and documentation | DICOM Basic<br>DICOM Advanced<br>External monitor connections<br>Video splitter<br>Printer<br>HIPAA |
| Accessories | Sterile covers for C-arm, X-ray tube and image intensifier |

| Operating data | |
|---|---|
| Power requirements | 100 V, 110 V, 120 V, 127 V, 200 V, 230 V, 240 V (± 10%); 50/60 Hz (± 1 Hz) |

| Environmental conditions (operation) | |
|---|---|
| Temperature range | + 15°C to + 35°C |
| Relative humidity | 15% to 75%, non-condensing |
| Barometric pressure | 700 hPa to 1060 hPa |

| Weight | |
|---|---|
| C-arm chassis | 350 kg (770 lbs) |
| Monitor trolley with integrated UPS | 190 kg (418 lbs) |

## Accessories (optional)

**Standard footswitch** **# 144 04 749**

Standard footswitch for radiation release

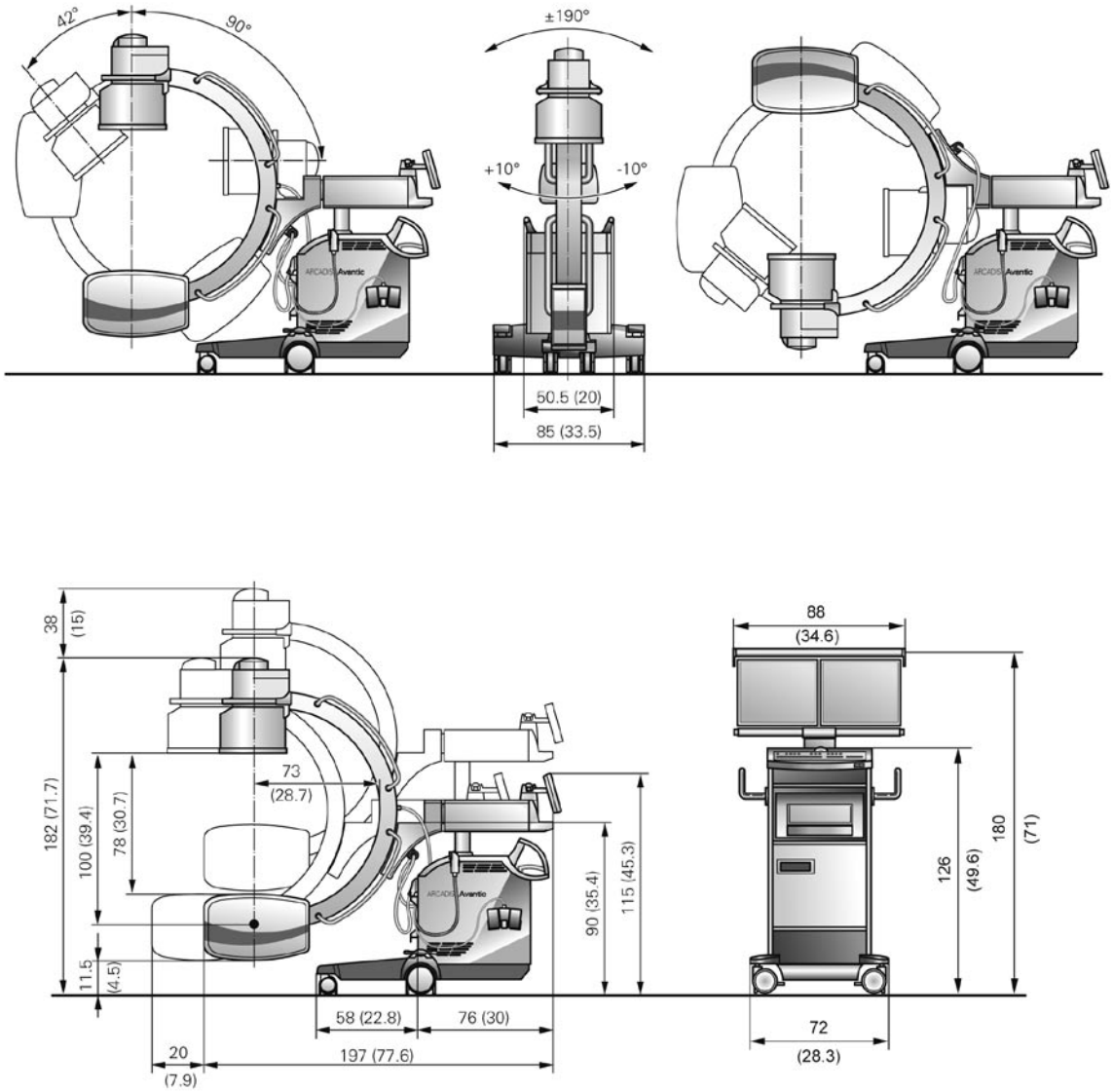
**Multifunctional footswitch** **# 144 04 750**

Multifunctional footswitch with extended functionality, e.g. radiation release, switching operating modes as well as storage of the last image (LIH)

**Remote control unit** **# 144 04 799**

Remote control unit for controlling the C-arm functions from the sterile area

## Dimensions in cm (inches)



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The required features should therefore be specified in each individual case at completion of contract.
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